Re: GN Docket Nos. 09-47, 09-51, 09-137; CC Docket No. 02-6; and WC Docket No. 05-195

COMMENTS: NPB Notice #15

PROPOSALS FOR E-RATE CONTINUATION AND MODIFICATION

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This submission addresses questions raised in Sections of the FCC's
NPB Public Notice #15: COMMENTS SOUGHT ON BROADBAND NEEDS IN EDUCATION…, released November 3, 2009.

Overview

This submission paper presents the key features of the E-Rate programs, and analyzes data on where the funds have been distributed by state and demographic categories including income levels and urban vs. rural districts. It presents recommendations on which parts of the E-Rate program should be continued, how to make the program more effective, and how to support other elements needed for effective utilization of ICTs such as c! ontent and capacity-building. The submission also recommends systematic monitoring and evaluation with specific metrics to determine whether these targeted subsidies can contribute significantly to bridging the U.S. broadband divide. The analysis is based on chapter by the author in Schejter, ed., January 2009.[2]

The Context: Internet and Broadband Access in the U.S.

Despite U.S. global leadership in communication technologies and Internet services, broadband availability in the U.S. lags many other industrialized countries. (The U.S. currently ranks 15th among industrialized countries in broadband access per 100 inhabitants according to the OECD.[3] Broadband costs in the U.S. also remain high. American consumers pay 10 to 25 times more per megabit than users in Japan. Also, average speed of broadband in the U.S. has not increased in the past five years; consumers in France and South Korea have residential broadband connections 10 to 20 times higher than in the U.S.

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[2] "The Future of the E-Rate: U.S. Universal Service Fund Support for Public Access and Social Services"in Schejter, Amit, ed., *… and Communications for All: An Agenda for a New Administration,* Lexington Books, 2009.

[3] Source: www.oecd.org/sti/ict/broadband, data from December 2008.

American broadband adoption is also highly dependent on socio-economic status: almost 60 percent of households with annual incomes above $150,000 have broadband, compared to fewer than 10 percent of households with incomes below $25,000.[4] The gap between rural and urban access persists: broadband penetration in urban areas is almost double that in rural. Further, access is most limited in the poorest regions. Seven of the ten states with the fewest high speed lines per capita are also among the ten poorest states in the country (Alabama, Arkansas, Idaho, Kentucky, Mississippi, Montana, and West Virginia).[5] Six of these same states are among the ten with the fewest Internet users per 100 residents.[6]

In education, broadband access for schools is important both to enable multiple users to be online, and to allow for data-rich applications such as multimedia web access and video conferencing. An Alaskan analysis of school bandwidth requirements states: "Less than T-1 [1.544 mbps] connectivity allows Internet use for data transfer, web searches, e-mail and web posting. Under normal circumstances, information flows at speeds allowing for group use, but may be overwhelmed. Video services can be used with some loss of picture and sound quality, but usually will require that other traffic, such as Internet use, be shut down."[7] Also, as applications become more demanding of bandwidth, many K-12 schools have expressed an interest in an Internet 2 connection. A study by the Pennsylvania Department of Education states that full use of the applications provided by Internet 2 requires nearly 10 megabits per second.[8]

Innovative Features of the E-Rate:

The E-Rate program includes features and incentives that are generally not used in other countries as strategies for extending access and bridging the digital divide.[9] They include:

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[4] Turner, S. Derek. "Broadband Reality Check," Free Press, August 2005.

[5] Measured in Gross State Product per capita. (New Mexico, also in the bottom 10 in high speed lines per capita, is the 11th poorest state measured by GSP per capita.) Source: FCC and US Census Bureau, October 2005.

[6] Alabama, Arkansas, Mississippi, Oklahoma, South Carolina, and West Virginia. Source: "Computer and Internet Use in the United States: 2003", US Census Bureau, October 2005.

[7] Matthis, Della. "E-Rate in Alaska: Telecommunications – Expanding Education and Library Service," June 2006. Available at http://library.state.ak.us/usf/Bandwidthreport5-06.doc.

[8] Quoted in Matthis, Della. "E-Rate in Alaska: Telecommunications – Expanding Education and Library Service," June 2006. Available at http://library.state.ak.us/usf/Bandwidthreport5-06.doc

[9] The author has pointed out the features of the E-Rate that could be adopted in other countries as part of their strategies to extend access and bridge digital divides. See Hudson, Heather E. "The Future of the E-Rate: U.S. Universal Service Fund Support for Public Access and Social Services." Paper presented at the International Telecommunications Society Conference, Montreal, June 2008.

- Institutional access: The E-Rate extends the definition of universal service to access – for individuals and students by subsidizing connectivity for libraries and schools..
- Targeted subsidies: Subsidies are highest for schools and libraries serving low income populations and in high cost rural areas.
- Subsidies to users: The subsidies are awarded to the institutional users – schools, libraries, and rural health care facilities, rather than to the operators, as is typical with most USF funds.
- Competitive bids: The organizations that have been certified for subsidies place their requirements on the universalservice.org website, to solicit competitive bids. (They may contract with the local incumbent at tariffed rates if no other bids are received in a specified period.)

As such, the E-Rate is primarily a form of ongoing sustainabililty subsidy for operating expenses, rather than a one-time subsidy for infrastructure or other capital expenditures, more commonly found in other universal service fund mechanisms. [10]

Origins of the E-Rate

The Universal Service Fund's original programs were designed to subsidize voice telephony access for low income residents, and to extend reasonably priced telephone services to rural and other underserved areas. ." The E-Rate (short for "education rate") was created by Section 254 (h) of the Telecommunications Act of 1996[11] to provide discounts on a wide variety of telecommunications, Internet access and internal connections products and services. The Act expanded the definition of universal service to include schools, libraries, and rural health care facilities, and access to "advanced services." The intent was to provide opportunities for students and community residents to take advantage of these "advanced services" even if they were not yet available in their homes, i.e. to help to bridge what became called the "digital divide."

Senator J. Rockefeller identified these new goals, and their relationship to other Telecom Act goals to increase competition and investment in telecommunications:

> "The telecommunications companies wanted more competition and the ability to expand. In exchange, we insisted on a strong, continued commitment by the telecommunications companies to "preserve and advance" universal service

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[10] For a review of 52 universal service funds, see Hudson, Heather E. "Universal Service Funds: Accelerators or Anachronisms?" Paper presented at the Telecommunications Policy Research Conference (TPRC), October 2009.

[11] Also known as the Snowe-Rockefeller-Exon-Kerrey amendment.

including access to advanced telecommunication services for schools, rural health care providers and libraries."[12]

E-Rate Allocations: Following the Money

Allocations for Schools and Libraries

About $21.1 billion has been allocated since funds were first disbursed in 1998. Of the total funds disbursed for the E-Rate, more than 86 percent (probably more than 90 percent because of additional funding to school/library consortia) went to schools. Libraries received 2.9 percent, and consortia of schools and libraries received 11.4 percent. See Table 1.

Table 1: Amount allocated for schools and libraries

Universal Service Fund: Allocations for Schools and Libraries: 1998-2007

Applicant Type	$ amount 1998-2007	% of $ Total
Schools/ School Districts	18,146,404,271	85.73%
Libraries	610,140,020	2.88%
School/Library consortium	2,410,533,002	11.39%
Total	**$21,167,077,293**	100.00%

Allocations by Discount Levels

From 1998 to 2006, 34.5 percent went to schools and libraries eligible for a 90 percent discount, while about 77 percent went to those eligible for discounts of 70 percent or more, and 87% to those eligible for discounts of 70 percent or more.[13] See Table 2. Thus, it appears that funds were disbursed primarily to schools in disadvantaged regions – in rural/remote or low income urban areas. (USAC does not break down most allocations by rural vs. urban location, apparently because funds are often granted to large jurisdictions, although they must provide the data in order to qualify for a discount rate.)

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[12] Senator Jay Rockefeller (D-WVA) quoted in Dickard, Norris, ed. "Great Expectations: Leveraging America's Investment in Educational Technology" Benton Foundation and Education Development Center, 2002.

[13] Derived from cumulative annual commitment data available at www.universalservice.org.

Table 2: Amount allocated by discount bands: 1998-2006

Discount Band	Percent of Funds by Discount Band 1998-2006	Percent of Funds by Discount Band 2007
20-29%	0.13%	0.13%
30-39%	0.38%	0.44%
40-49%	5.99%	6.52%
50-59%	6.53%	7.23%
60-69%	9.86%	12.09%
70-79%	14.22%	18.56%
80-89%	28.42%	26.63%
>90%	34.48%	28.40%
Total 60% - >90%	86.98%	85.68%

Allocations for Services

From 1998 to 2007, $10.3 billion or 47.8 percent of total funding was allocated for internal connections (within schools and libraries). About $8.6 billion or 39.6 percent was allocated for telecommunications services. About $2.3 billion or 10.6 percent was for Internet services. See Table 3.

The allocations have changed in recent years, with 49.2 percent allocated for telecommunications services and 12.9 percent for Internet access in 2007. The funding for basic maintenance of internal connections has been available only in 2005 and since 2005. Most funding for internal connections has gone to schools with discounts of 70 percent or more. See Table 4.

Table 3: Allocations by Service 1998-2007

Summary 1998-2007

	Total	Percentage
Internal Connections	10,329,922,194	47.77%
Internet Access	2,299,930,050	10.63%
Telecom Services	8,598,028,474	39.63%
Basic Maintenance of Internet Connections	398,270,253	1.84%
	$21,626,150,971	
TOTAL		**100.00%**

Table 4: Allocation by Service 2007

Allocations by Service 2007

Internal Connections	$726,471,209	31.69%
Internet Access	295,381,178	12.89%
Telecom Services	1,127,614,659	49.20%
Basic Maintenance of Internal Connections	142,635,505	6.22%
Total	2,292,102,551	**100.0%**

Allocations by State

There was significant variation in the funding per capita among the states for the period 1998-2006. Four of the 10 poorest states (measured in GSP/capita) were among the biggest E-Rate recipients per capita: Mississippi, Oklahoma, South Carolina, and Kentucky. The biggest beneficiaries were Alaska and the District of Columbia, which received $201 and $200 per capita, respectively. Other states that have received more than $100 per capita to date include New Mexico and New York. See Table .

For funding year 2006, the top 10 states in E-Rate funds committed per capita included three of the poorest states, measured in Gross State Product per capita: Mississippi, Oklahoma, and Alabama. Three other states have significant native American populations and isolated areas (Alaska, New Mexico, South Dakota). See Table 6.

Table 5: Top 10 States in Funding per Capita

Top 10 States in E-Rate Funding per Capita 1998-2006

Alaska	$201
District of Columbia	$200
New Mexico	$176
New York	$138
Mississippi	$109
Oklahoma	$100
South Carolina	$95
Louisiana	$87
Texas	$86
Arizona	$76
Kentucky	$76

(**Bold** indicates states among poorest 10 states in GSP/capita.[14]

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[14] State economic data for 2005 from U.S. Bureau of Economic Analysis: www.bea.gov.

Table 6: Top 10 States: E-Rate Funds/Capita: 2006

State	E-Rate Funds/Capita
Alaska	$27.60
District Of Columbia	$19.21
Louisiana	$16.94
New Mexico	$15.27
Mississippi	$13.15
Oklahoma	$10.53
Alabama	$10.10
New York	$9.85
South Dakota	$9.81
Arizona	$9.37

(**Bold** indicates states among poorest 10 states in GSP/capita.)

The bottom 10 states in funding per capita received just $12 to $32 per capita in the period 1998 to 2006. They include several states with significant rural areas: New Hampshire, Nevada, Vermont, Idaho (also one of the poorest states), Hawaii, and Iowa. See Table 7.

Is the reason for this low rate of support intentional rejection of federal funding, or significant alternative support from state and local levels? New Hampshire, Nevada, Maryland, Washington, and Virginia rank in the top 15 states in high speed lines per capita according to FCC data. Or do organizational problems such as small school districts or lack of a mentor or champion hinder some of these states that could benefit from more funding support? The latter was apparently the case in Vermont based on field interviews by the author.

Table 7: Bottom 10 States in Funding per Capita: 1998-2006

Bottom 10 States in E-Rate Funding per Capita 1998-2006	
New Hampshire	$12
Delaware	$13
Nevada	$17
Vermont	$25
Idaho	$26
Hawaii	$27
Maryland	$29
Iowa	$30
Washington	$31
Virginia	$32

(**Bold** indicates state among poorest 10 states in GSP/capita.)

Benefits of the E-Rate

After more than a decade's worth of E-Rate support totaling over $21 billion, there has been little rigorous evaluation of the utilization or impact of E-Rate funds. Reports have generally been based on case studies or anecdotal evidence.

In 1996, about two-thirds of public schools had Internet access. By 2003, virtually every public school could go online. *Education Week* notes: "Perhaps even more striking, high-poverty schools, as well as their low-poverty counterparts, could boast near-universal access to the Internet by that point."[15] A report sponsored by the Education and Library Networks Coalition (EdLiNC) credits the E-Rate with increasing the percentage of public classrooms with Internet access from 14 percent in 1996 to 95 percent in 2005.[16] Similarly, Internet access for libraries also increased dramatically during this period; more than 95 percent of US libraries had Internet access in 2006, compared to 28 percent in 1996.[17] As shown above, more than one-third of E-Rate funds went to the poorest schools (with discounts of 90 percent or more), and a total of more than $18.4 billion went to schools eligible for a discount of 60 percent or more.[18] But would most schools and libraries have gained Internet access without the E-Rate through state or local initiatives? Perhaps not, but the causality link is missing.

An earlier EdLiNC report concluded that:
- The E-Rate is an important tool for economic empowerment in underserved communities;
- The E-Rate is beginning to bring new learning opportunities to special education students;
- The E-Rate is transforming education in rural America;
- E-Rate-supported technical infrastructure in schools is vital to reaching student achievement goals in No Child Left Behind legislation;
- Schools and libraries are devoting significant resources in completing E-Rate applications.[19]

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[15] Swanson, Christopher B., "Tracking U.S. Trends," *Education Week*, May 4, 2006.

[16] EdLiNC, "E-Rate: Ten Years of Connecting Kids and Community." Education and Library Networks Coalition, February 2007.

[17] Source: American Library Association website: www.alawash.org

[18] Derived from cumulative annual commitment data available at www.universalservice.org.

[19] EdLiNC, "E-Rate: A Vision of Opportunity and Innovation." Education and Library Networks Coalition, 2003.

Case studies of Chicago, Cleveland, Detroit, and Milwaukee carried out for the Benton Foundation identified several benefits, but also new challenges resulting from E-Rate support:

- Network infrastructure deployment has been accelerated, and Internet access improved dramatically.
- E-Rate funding has enabled school districts to leverage existing financial resources.
- Professional development needs are increasing geometrically.
- School districts are highly dependent on E-Rate funding.
- The E-Rate has led to changes in school district planning practices, requiring new knowledge and new collaboration.
- The current E-Rate process taxes relationships with vendors.
- The need for building upgrades (in wiring and other hardware, for example) can delay deployment of information technology.[20]

Beyond Access

Effective utilization of the Internet for education requires not only connectivity, but also capability, content and appropriate context (sometimes called "the four C's). *Education Week's* "Technology Counts 2008" study uses several criteria to evaluate technology on leadership in three core areas of technology policy and practice: access to technology, use of technology, and capacity to use technology.

Concerning Internet access, a teacher commented in Benton's 2002 study: "It's a great leash, but there's no dog."[21] Since 2002, the average level of computer access has hardly changed, remaining close to four students per instructional computer. In 2007, there were 3.7 students for every high speed Internet-connected computer in U.S. public schools. However, the number of students sharing a high speed Internet-connected computer ranged from less than 2 (1.9 in South Dakota) to 5 or more (in Mississippi and California).[22]

Education Week found that study respondents listed professional development and connectivity/networking as their two highest priorities for technology spending this school year. Nationwide, 15 percent of public schools reported that the majority of their teachers were at a "beginner" skill level in their use of technology. However, like computer access, teacher skill levels vary from state to state. In 2006, at least one-third of schools in Mississippi and West Virginia reported a majority of teachers were beginners,

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[20] Carvin, Andy, ed. "The E-Rate in America: A Tale of Four Cities." Washington, DC, Benton Foundation, 2000, pp. 16-17.

[21] Quoted in Dickard, Norris, ed. "Great Expectations: Leveraging America's Investment in Educational Technology" Benton Foundation and Education Development Center, 2002, p. 20.

[22] "Technology Counts 2008." *Education Week*, March 2008. www.edweek.org.

compared to only 3 percent of schools in South Dakota.[23] Yet technology skills alone are not sufficient. A budget for technical support and maintenance is needed; otherwise, tech-savvy teachers may end up becoming "electronic janitors," just to keep the equipment running.[24]

Effective use of the technology also requires applications that can enrich curricula and extend learning. *Education Week* notes: "… states are taking steps to help expand the use of educational technology both through standards for students and via efforts to push the boundaries of conventional schooling."[25] Twenty-three states have established a state virtual school, and 16 states have at least one cyber charter school.[26] About 19 percent of public schools offered their own distance-learning programs for students. Are state and local initiatives building on the foundation of E-Rate support, or substituting for it?

RECOMMENDATIONS:

The following recommendations are based the evidence cited above, and related research on ICTs in education and on universal service support mechanisms:

Continue the E-Rate program:

Despite the lack of hard data, there is significant evidence that the funds have contributed to providing access to the Internet for school students and for community residents through public libraries. However, the program needs some revision and greater oversight (see below).

1. Key Elements of the E-Rate Process should be retained:

 The E-Rate funds allocation process has several unique features that should be retained:

- **Awards to the user:** The E-Rate funds are awarded to the user (school or library) rather than directly to the carrier or vendor. This approach can empower the schools and libraries as customers of the carriers, rather than supplicants. In some cases, schools and libraries have become "anchor tenants" for these carriers, encouraging them to bring broadband into previously unserved communities (see below).

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[23] Swanson, Christopher B., "Tracking U.S. Trends," *Education Week*, May 4, 2006.

[24] Dickard, Norris, ed. "Great Expectations: Leveraging America's Investment in Educational Technology" Benton Foundation and Education Development Center, 2002, p. 23.

[25] Swanson, Christopher B., "Tracking U.S. Trends," *Education Week*, May 4, 2006.

[26] "Technology Counts 2008." Education Week, March 2008. See www.edweek.org.

- **Competitive bids:** The E-Rate process requires competitive bids for approved services through the USAC website. This approach not only creates incentives to minimize costs, but also encourages new entrants in addition to incumbents and large vendors to provide equipment and services for schools.

These approaches differ from the models used in most other countries, where subsidies go directly to carriers, and incumbents may be required to provide discounted or free service to schools. In these other models, carriers have no incentive to provide high quality of service to schools if they see no revenue potential. Further, if they receive direct government subsidies to provide the service, they may have no incentive to minimize costs. The incentive-based E-Rate model, while not perfect, is far superior.

2. Proposed Changes to the Funding Formula:

Graduated discounts are greatest for schools and libraries in rural/remote and low income urban areas. This general formula should be maintained. However, given the limited support for schools and libraries that are not eligible for significant discounts, it could be argued that funding should be available only to those that are clearly disadvantaged, e.g. eligible for discounts of 60 percent (or possibly 70 percent) or more. Allocations to other applicants could be gradually phased out. Alternatively, the discount percentages could be reviewed and possibly decreased. Do discounts of 80 percent or 90 percent provide sufficient incentives to schools and libraries to find additional sources of funding, or to be prudent and efficient in their utilization of ICT facilities and services?

Some of the remaining funds might then be made available for capability and content as well as for research on the E-Rate Program (see below). A small amount of funds should also be allocated for outreach, to ensure that all eligible recipients are aware of the program, and to provide training and support to help them with the funding process.

The FCC raises the question of whether schools and libraries without broadband should be prioritized. It does not appear at present that such applicants have not been supported as part of the process whereby current recipients are also renewed. However, information is not available on how many applicants are in this category, and how many other schools and libraries without broadband have not applied. If funding delays are identified as a deterrent, a "fast track" category for new applicants could be implemented.

3. Expanding Funding:

While there are bound to be requests for support that exceed the current funding ceiling, other sources of funding besides surcharges on telephone bills should be found. Any expansion of E-Rate support using surcharges on telephone bills should be considered within the overall framework of universal service fund reform. Increasing surcharges on phone bills is not an appropriate means to expand funding. Rather, other sources should be identified such as other federal programs and spectrum auctions (see section on Capability and Content below).

4. Should E-Rate Funds support Capability and Content?

Some educators advocate expanding E-Rate funding beyond connectivity to support training, technical support, and content. In general, given the pressures on the funding base and ongoing requirements for connectivity subsidies, E-Rate funds should be limited to supporting connectivity, while other sources should be tapped for these additional important needs.

However, as noted above, if funding formulas were changed, some E-Rate support could be allocated for these purposes. For example:
- A small percentage of funds (e.g. up to 10 percent) could be used for competitive grants for training and content development.
- The $650 million that was unused and carried forward from funding years 2001 to 2004 could be used for capability and content.

Several alternatives have been proposed to fund additional activities in technical training and support and content development. One approach is to provide support from other government agencies, such as the federal Department of Education. For example, the Enhancing Education Through Technology (EETT) program, which was authorized as Title II-D of the No Child Left Behind Act (NCLB), enables schools to address core teaching and learning needs through technology, including access to courses online, professional development programs for teachers and technology skills and tools for students.[27]

States distribute funds to school districts with 50 percent allocated by a poverty-weighted formula and 50 percent by competition. EETT gives schools broad discretion to use program resources for technology-related acquisition, enrichment, professional development and integration purposes aimed at improving student achievement and student technology access.[28]

However, although the EETT was authorized in the NCLB legislation at $1 billion per year, it was funded at about $690 million for its first three years in Fiscal Years 2002-2004, and was reduced to $496 million in FY2005 and to $272 million in FY2006.[29] Clearly, additional funds are needed to enable this program to achieve educational technology goals and to complement the support for connectivity through the E-Rate.

Digital Promise proposes establishment of a nonprofit nongovernmental Digital Opportunity Investment Trust (DO IT) "designed to meet the urgent need to transform learning in the 21st century." The trust would use FCC spectrum auction funds for learning software and tools to make use of Internet and for information and

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[27] Other uses include computer-based testing, and disaggregating and reporting of student data.

[28] Coalition on School Networking: www.cosn.org/about/press/071906.cfm.

[29] Coalition on School Networking: www.cosn.org/about/press/071906.cfm.

communication technologies for education. The proponents draw parallels to the historic use of revenues from the sale of public lands "which helped finance public education in every new state and created the great system of land-grant colleges voted by Congress and signed by President Lincoln during the darkest days of the Civil War."[30]

5. Improving the E-Rate Process:

Modify oversight of the E-Rate:

Some federal officials have proposed that the E-Rate should be merged with other Department of Education technology programs. However, because of its direct role as a key component of universal service policy, the E-Rate should remain independent of other government departments and under the administration of the FCC.

But should a community access program be run by an agency comprised primarily of lawyers and economists? Not without other input. The Federal-State Joint Board includes some state commissioners and consumer advocates, but other types of expertise are needed. Oversight should include representatives from other federal agencies including NTIA (National Telecommunications and Information Administration) concerning national communications infrastructure policy, the Department of Education (DOE), and Health and Human Services (HHS), which is already involved in the Rural Health Care initiatives). There should also be participation of experts on research and evaluation of ICT applications, and possibly of federal research bodies such as the National Academy of Sciences and National Science Foundation. This latter group would be responsible for guiding evaluation research on the utilization and impact of E-Rate funding.

Better Management:

Problems of slow and cumbersome processes to allocate funds have continued to plague the Universal Services Administrative Company (USAC). In May 2007, USAC projected that $650 million allocated for schools and libraries from funding years 2001 to 2004 had not been spent. The FCC authorized these funds to be carried over to the next funding year to increase disbursements for schools and libraries.[31] This amount represented 26 percent of the funds available ($2.25 billion annually) during the four year period.

The E-Rate Program has been accused of insufficient oversight. Some school districts have purchased equipment that was unnecessary, too costly or beyond their capability to manage. Equipment vendors have been accused of fraud and price-rigging.[32] In 2003, USAC, with support from the FCC, convened a task force to recommend steps to

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[30] Source: www.digitalpromise.org.

[31] FCC Public Notice DA07-2470, released June 11, 2007.

[32] See, for example, Dotinga, Randy. "Fraud charges cloud plan for 'wired' classrooms" The *Christian Science Monitor*, June 17, 2004.

strengthen and improve E-Rate compliance procedures and protections from waste, fraud and abuse.[33] In December, 2003, the House Committee on Energy and Commerce requested the Government Accountability Office (GAO) to prepare a report on the FCC's management and oversight of the E-Rate Program. The GAO found evidence of some mismanagement of E-Rate funds, bureaucratic delays in disbursing funds, and some waste of E-Rate resources. Its report called for the FCC to strengthen its management and oversight by determining comprehensively which federal accountability requirements apply to the E-Rate, establishing E-Rate performance goals and measures, and taking steps to reduce beneficiary appeals.[34] In March 2005, the House Committee held hearings on the GAO report.[35]

USAC and the FCC have taken significant steps to rectify these problems. They are also being addressed through the FCC in its Notice of Proposed Rulemaking (NPRM) on USF management, administration and oversight.[36]

To provide ongoing oversight and review of procedures and disbursements, a triennial review of FCC and USAC administrative, application and oversight procedures should be required to improve efficiency, effectiveness and transparency of funds disbursement, and to examine changing needs for ICT access.

At the Federal Level:

Although there are strengths in the E-Rate allocation process, the program has proved difficult to implement and administer. Some educators and librarians have found that it places a heavy burden on them in terms of time, effort and expertise. The application process is demanding, and requires careful monitoring and attention to detailed specifications and submissions. The unspent $650 million from funding years 2001 to 2004 (representing 29 percent of available funds) indicates that something is seriously wrong with the disbursement process.

The required technology plan was intended to force schools to think through how they would address the "other C's" including teacher competency and relevant content, as well

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[33] Recommendations of the Task Force on Prevention of Waste, Fraud and Abuse, September 2003.

[34] United States Government Accountability Office (GAO). "Telecommunications: Greater Involvement Needed by FCC in the Management and Oversight of the E-Rate Program. Report to the Chairman, Committee on Energy and Commerce, House of Representatives, February 2005.

[35] "Problems with The E-Rate Program: GAO Review Of FCC Management And Oversight." Hearing Before The Subcommittee On Oversight And Investigations Of The Committee On Energy And Commerce, House Of Representatives, March 16, 2005

[36] Federal Communications Commission, Notice of Proposed Rulemaking: "Comprehensive Review of Universal Service Fund Management, Administration, and Oversight." WC Docket No. 05-195, released July 20, 2005.

as how they would fund ongoing technical support and maintenance. Yet some schools have simply outsourced the preparation of the technology plan, or used a "cookie cutter" model that satisfies the requirement but not the intended benefit of preparing the plan. The requirement for a technology plan should be reviewed. It could be replaced with a simpler requirement that the schools or school districts must provide a statement that shows:

- how they intend to provide for capital equipment not funded through the E-Rate;
- how they intend to provide for maintenance and other ongoing operating costs;
- how they intend to obtain funds for connectivity not covered by their E-Rate support;
- how they intend to utilize service supported through the E-Rate for instruction, enrichment, student research, etc., and what steps are needed (teacher training, curriculum revision, etc.)

Recipients could be required to update the plan each time the request ongoing E-Rate support.

At the State and Local Level:

States and school districts themselves could work to improve the process and the funding available to their schools. While the preponderance of E-Rate funds is going to poor and disadvantaged states and school districts, there are still eligible schools that remain unfunded. Some have secured funding from their state or from local sources. But other schools that could use the funds have not applied. One strategy that the school districts and state coordinators could use more effectively is mentoring. A resource person who can provide advice, critique draft submissions, and trouble-shoot the process can make a major difference. One explanation for Alaska's significant success in obtaining E-Rate funds was the assignment of a state librarian as state E-Rate coordinator to help the schools and libraries prepare applications and navigate the E-Rate labyrinth. She provides advice, explains the requirements, and assists in completing the forms and tracking their progress.[37]

Some educators and librarians are already organized to take advantage of state technology initiatives such as the Texas Infrastructure Fund (TIF). State officials in Vermont, on the other hand, noted that their school districts are very small, and may not have the staff time or expertise to get through the process.[38]

Many school districts state that they would have difficulty finding funds to pay for connectivity if E-Rate funds and discounts were discontinued. While this claim demonstrates the value of the E-Rate subsidy to the schools, it also shows that school districts need to examine how they allocate their available technology dollars, and

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[37] Personal interviews with Della Matthis, Alaska E-Rate coordinator.

[38] Personal interviews with Vermont officials, April 2004.

whether they can diversify their funding sources or include connectivity costs in their annual budgets.

6. E-Rate Support as a Strategy for Extending Infrastructure:

There is some evidence that extension of broadband networks to connect schools and libraries has also brought broadband to neighborhoods and rural communities that previously lacked access. For example, in Alaska, the E-Rate support in isolated villages, as schools (and clinics under the Rural Health Care funding) have become "anchor tenants" for broadband, providing incentives for carriers to extend broadband services to these communities.[39]

The FCC should commission studies to determine to what extent E-Rate funding has contributed to extending infrastructure in Alaska, on Indian reservations, and in other previously unserved areas. It should also examine how E-Rate support can complement federal ICT infrastructure initiatives such as NTIA's BTOP program and rural infrastructure grants and loans through the Rural Utilities Service (RUS).

7. Public Access:

It can be argued that the underlying goal of the expanded universal service support in the Telecom Act of 1996 was to extend Internet (and other "advanced services") to communities through institutional access at schools and libraries. This is a model long followed in the developing world, where telephony was first provided through public pay phones and Internet access is often supported through community telecenters.[40]

Schools should be encouraged to open their computer labs and Internet access to the public during evenings and weekends, and during the summer, especially in communities without public libraries or other public access. Such expansion of access would likely require funding for additional staffing and security. E-Rate funds to cover these costs could be provided on a pilot basis (e.g. over 3 years) to provide public access. After the initial year of support, schools should be required to provide documentation of the hours they were open and the number of users during those hours. Additional information that should be required would be demographics of users such as age category, gender, education level, and whether the user had a computer at home or other access to the Internet. Such data could be collected while preserving anonymity.

Public access could be further extended by allowing schools and libraries to provide wireless access to their networks. A precedent for this approach is a waiver granted by the FCC to the State of Alaska in 2001:

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[39] See Hudson, Heather E. "Universal Access: What have we learned from the E-Rate?" *Telecommunications Policy*, vol. 28, issues 3-4, April-May 2004, pp. 309-321.

[40] See Hudson, Heather E. *From Rural Village to Global Village: Telecommunications for Development in the Information Age.* New York: Routledge, 2006.

"In this Order, we grant the State of Alaska (Alaska) a limited waiver of section 54.504(b)(2)(ii) of the Commission's rules, which requires applicants to certify that the services requested will be used solely for educational purposes, subject to the conditions discussed below.[41] We find that good cause exists to allow members of rural remote communities in Alaska, where there is no local or toll-free dial-up Internet access, to use excess service obtained through the universal service mechanism for schools and libraries when not in use by the schools and libraries for educational purposes."[42]

In 2002, the FCC sought comment on whether to expand this provision:

"We seek comment more broadly on the types of situations that might warrant utilization of excess service obtained through the universal service mechanism for schools and libraries when services are not in use by the schools and libraries for educational purposes.[43] Although we believe the Commission's current rule relating to educational purposes is appropriate in the overwhelming majority of circumstances, we seek comment on whether the Commission should revise its rules in order to expressly address such situations, and whether such revisions would further the goals of improving program operation, ensuring a fair and equitable distribution of benefits and preventing waste, fraud, and abuse." [44]

Conclusions

While not flawless, the Universal Service Programs for schools, libraries and rural health care has helped numerous students in enabling them to use the Internet and other electronic services for education, community residents in providing access to the Internet in libraries, and patients dependent on rural health care services.

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[41] *Petition of the State of Alaska for Waiver for the Utilization of Schools and Libraries Internet Point-of-Presence in Rural Remote Alaska Villages Where No Local Access Exists and Request for Declaratory Ruling*, CC Docket No. 96-45, Request for Waiver and Declaratory Ruling, filed January 29, 2001 (Alaska Petition). *See also State of Alaska Seeks a Declaratory Ruling and Waiver of Section 54.504(b)(2)(ii) of the Commission's Rules Pleading Cycle Established*, CC Docket No. 96-45, Public Notice, DA 01-584 (rel. Mar. 7, 2001) (Alaska Public Notice).

[42] FCC 01-350: "In the Matter of Federal-State Joint Board on Universal Service: Petition of the State of Alaska for Waiver for the Utilization of Schools and Libraries Internet Point-of-Presence in Rural Remote Alaska Villages Where No Local Access Exists and Request for Declaratory Ruling." Adopted November 29, 2001.

[43] *See* 47 U.S.C. § 254(h)(1)(B); 47 C.F.R. § 54.504(b)(2)(ii).

[44] FCC 02-8: In the Matter of Schools and Libraries Universal Service Support Mechanism. Notice of Proposed Rulemaking and Order. Adopted January 25, 2002.

Based on the above analysis, the following are recommended policies for the future of these programs:

- Continue the Universal Service Fund programs for schools, libraries and rural health care as a permanent component of universal service.

- Keep responsibility for the Universal Service Fund programs for schools, libraries, and rural health care at the FCC, but establish advisory committees with membership from NTIA, DOE, and HHS as well as from professional educational, library and health care organizations, and experts on utilization of information and communication technologies (ICTs) in these fields and evaluation of ICT programs and impacts.

- Continue the following E-Rate policies:

    o Limit funding to connectivity and related facilities
    o Maintain discounts based on poverty and rurality
    o Maintain competitive bidding process for vendors.

- Require a triennial review of FCC and USAC administrative, application and oversight procedures to improve efficiency, effectiveness and transparency of funds disbursement.

- Identify funding sources to support the factors critical to effective utilization of ICTs: capacity-building for teachers and others in using ICTs, development and exchange of effective content for education and other development applications, and contextual applications (based on factors such as language, culture, ethnicity, disabilities).

- Require that a small percentage of USF funds be used for *outreach* to make more educators, librarians and rural health care providers aware of the programs and how to participate, and for *evaluation* to update and analyze data on program utilization and to assess impacts of USF support.

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